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conifers is in no wise out of place in the environment of our mesophytic forests, for these are ecologically xerophytic for over half the year. He also holds that in the acicular leaf and the deciduous habit of some of the northern conifers we have more recent adaptations to the demands of a xerophytic habitat, thus accounting for the present wide distribution of this primitive group and its successful competition with phylogenetically higher forms.

The arguments of both of these writers are suggestive, and much of the value of such discussions lies in the emphasis which they lay upon the necessity of approaching these problems with more precise methods than have hitherto been employed.

J. ARTHUR HARRIS

Notes on the Problem of Adaptation.—*The Stinging Property of the Giant Nettle tree.* The giant nettle tree, *Laportea gigas*, a native of Australia often attaining a height of over a hundred feet, has long been noted for the violence of its action. Its large juicy leaves are covered with numerous strong hairs or bristles which are filled with a powerful stinging fluid. If the leaves be lightly brushed these hairs penetrate and break in the skin, causing pain which gradually increases in severity and sometimes lasts for several days. A popular name for the *Laportea* is "mad tree." Petrie (Proc. Linn. Soc. N. S. W., 31: 530-545. 1906) presents a detailed account of the chemical composition and physiological action of the juices of this tree. He suggests five functions for the organic acids which are found in especial abundance, and states that "after considering the various functions in which organic acids take part, we cannot believe that the function of protection is the only one in this case."

Assimilatory Tissue in Mangrove Seedlings. Schimper was inclined to doubt the assimilatory function of the hypocotyl of mangrove seedlings but Goebel and Haberlandt acknowledge that they may perform this function. Carson (New. Phytologist, 6:178-183. 1907) describes the structure of the chlorophyll-containing tissue of the hypocotyl of *Bruguiera* and *Rhizophora*, and thinks it safe to assume that in the *Rhizophoraceae* generally the "hypocotyl is an assimilatory organ and is definitely modified for assimilatory purposes."

Benzoic Acid in Pingulica. Insects which die in great numbers on the leaves of *Pingulica vulgaris* emit no putrid odor. Experiments performed by Loew several years ago indicated the presence of some antiseptic substance. Loew and Asō (Bull. Coll. Agric. Imp. Univ.

Tokyo, 7: 411-412. 1907; also Bot. Mag. Tokyo, 21: 107-109. 1907) conclude that benzoic acid is the substance which prevents putrefaction. Thus *Pinguilica* differs from *Utricularia* in which the captured organisms putrify.

Biologists are much less inclined than formerly to attribute adaptive significance to the characters separating closely related species. Nevertheless Focke (Abh. Naturw. Ver. Bremen, 19: 82. 1907) holds that closely related forms are adapted to slightly different habitats. He gives a list of several plant species which he thinks illustrates this point.

Davidson (Agric. Journ. Cape Good Hope, 31: 175-177. 1907) calls the attention of botanists to the interesting structural peculiarities of the tuberous Liliaceous genus *Eriospermum*.

J. A. H.

Plant Cultivation in Art and Education.¹—During the past few years there has been unusual interest in the possibilities of artistic gardening, both in the country and the city. This is evidenced by the publication of such elegant magazines as the *Country Calender*, *Suburban Life*, *Country Life in America*, and the *Garden Magazine*, as well as by the attention which civic leagues everywhere are giving to parks and highways. Many of the publications of the park commissioners of our cities are prepared and published with the most fastidious care, and in them plant cultivation has a prominent place.

The English are still much in advance of Americans in these matters -- in interest, theory, and practice. During the last few weeks we note the publication of such works as Kingsley's "Eversley Garden and Others," Thonger's "Book of Rock and Water Gardens," Davidson's "Unheated Greenhouse," and the more pretentious "Art and Craft of Garden Making" by Mawson. On this side of the water

¹ Kingsley, Rose G. *Eversley Garden and Others*. London. George Allen. 1907. 6 s.

Thonger, C. *The Book of Rock and Water Gardens*. London & New York. John Lane. 1907. \$1.00.

Davidson, K. L. *The Unheated Greenhouse*. London. The Country Life Co. 1907. 8 s, 6 d.

Mawson, T. H. *The Art and Craft of Garden Making*. 3 ed. London. B. T. Botsford. 1907.

Bisset, P. *The Book of Water Gardening*. New York. A. T. De La Mare. 1907.